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ABSTRACT

This report describes tech prep, one of the types of school-to-work transition programs in place in North Carolina. Information is provided on the following: (1) what tech prep is; (2) dimensions of tech prep; (3) need for tech prep; (4) how successful tech prep programs operate (key conditions for secondary schools and community colleges and key practices for accelerating student achievement); and (5) tech prep associate degree programs. (KC)

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What?
Why?
How?

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Bob Etheridge, State Superintendent

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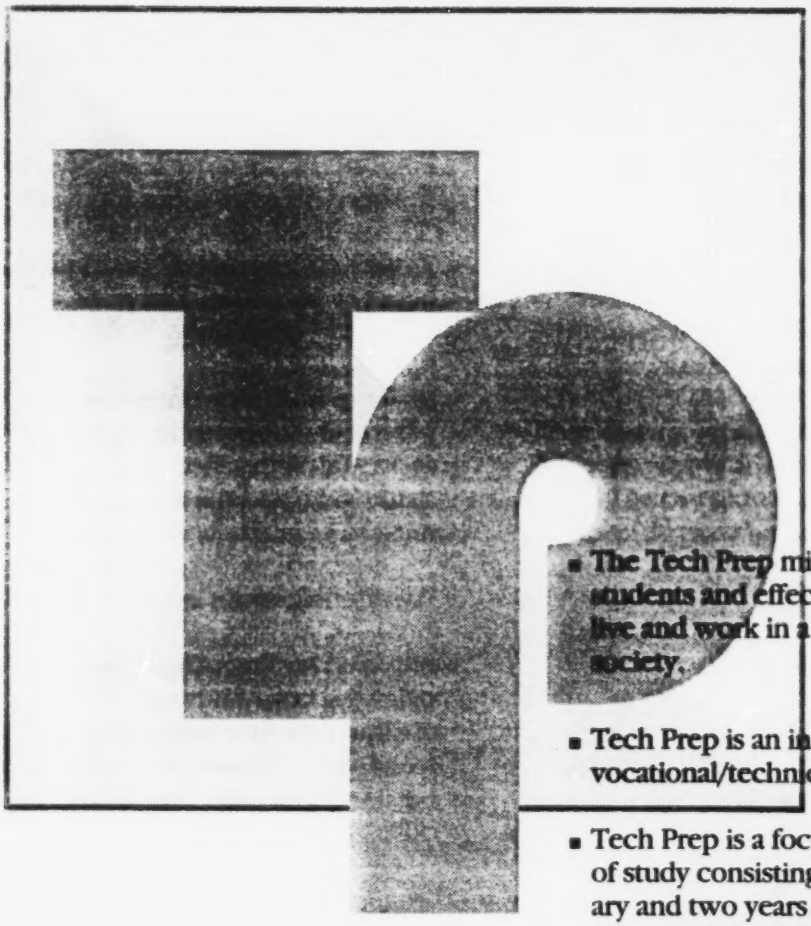
WHAT IS TECH PREP?



- **The Tech Prep mission is to challenge students and effectively prepare them to live and work in a highly technological society.**
- **Tech Prep is an integrated academic and vocational/technical course of study.**
- Tech Prep is a focused, sequenced course of study consisting of four years of secondary and two years of post-secondary education or a registered apprenticeship program of at least two years. Both lead to an associate degree or certificate in a specific career field.
- Tech Prep is jointly developed with business and industry.
- Tech Prep has a common core of required proficiencies in mathematics, science, communications, and technology.*

**From the Tech Prep/Associate Degree Joint Policy Statement for N. C. State Board of Education and N. C. Board of Community Colleges.*

Joint Policy Statement for N. C. State Board of Education and N. C. State Board of Community Colleges

DIMENSIONS OF TECH PREP

Tech Prep:

- Guides students into a **focused course of study** which forms a firm academic, technological foundation.
- Prepares students to enter post-secondary education **without the need for remediation.**
- Prepares students for a more **technically oriented workplace** capable of adapting to and handling rapidly changing workplace demands.
- Emphasizes the premise that **all students** can learn.
- Combines academic and vocational/technical courses to form an **integrated course of study** and establishes high expectations for students in both academic and vocational technical courses.
- Emphasizes **life-long** learning and the need for continuing education.
- Provides a **"seamless" transition** between secondary and post-secondary education.
- Includes **industry-based** on-the-job training opportunities, such as apprenticeships, internships, shadowing, and the cooperative method of instruction.
- Provides **rigorous** courses.
- Builds on **strong application-oriented competencies** in communications, mathematics, technology and science for developing intellectual and problem-solving skills.

"Public school students in North Carolina are being encouraged to take more challenging courses to better prepare themselves for the future. Through the Tech Prep program, partnerships between educators and business/industry are providing a vehicle to meet this challenge."

Bob Etheridge, *State Superintendent, Department of Public Instruction*

- Uses an **interactive teaching/learning** method that builds on the student's success.
- Utilizes a component that continually **assesses student progress**, provides for curriculum improvement and organizational change, and encourages community involvement.
- Promotes a **partnership** effort among middle and high schools, post-secondary schools, business/industry, community leaders, parents, and students.
- Provides a **flexible course of study** in which a student can change clusters and/or move between a tech prep and college prep course of study.
- Utilizes **state-of-the-art technology** and equipment to develop student competencies.
- Provides **equal access** for special populations to the full range of course offerings and additional assistance.
- Contains a **guidance component** that begins in the middle grades and draws a relationship between careers and the need to plan and focus on attributes essential to success in the workplace.
- Provides a **college prep parallel course** of study that presents an alternative to the general education course of study.

Joint Policy Statement for N. C. State Board of Education and N. C. State Board of Community Colleges

"I am convinced that the tech prep/associate degree program represents one of the state's best chances of substantially increasing the knowledge and technical skills of the young people we will depend upon to carry this state into the next century."

Bob Scott, *President, Department of Community Colleges*

WHY IS TECH PREP NEEDED?

The U. S. Congress cited in the "Tech Prep Education Act" these findings:

- rapid technological advances and global economic competition demand increased levels of skilled technical education preparation and readiness on the part of youth entering the workforce.
- effective strategies reaching beyond the boundaries of traditional schooling are necessary to provide early and sustained intervention by parents, teachers, and educational institutions in the lives of students.
- a combination of nontraditional school-to-work technical education programs, using state-of-the-art equipment and appropriate technologies, will reduce the dropout rate for high school students in the United States and will produce youth who are mature, responsible, and motivated to build good lives for themselves.
- the establishment of systematic technical education articulation agreements between secondary schools and post-secondary educational institutions is necessary for providing youths with skills in the liberal and practical arts and in basic academics, including literacy instruction in the English language, and with the intense technical preparation necessary for finding a position in a changing workplace.
- by the year 2000 an estimated 15,000,000 manufacturing jobs will require more advanced technical skills, and an equal number of service jobs will become obsolete.
- more than 50 percent of jobs that are developing will require skills greater than those provided by existing educational programs.

"Tech Prep programs must be relevant and responsive to labor market demands and to the educational needs of all students who are involved."

Jim Wingate, *Vice President for Programs*
Department of Community Colleges

Job Growth Trends

- Only 15 percent of the jobs of the future in the United States will require a four-year college diploma, but more than half of the jobs will require post-secondary education and training.

- Most job growth in North Carolina will be in service-producing industries which will grow at an annual rate of 2 percent, while overall annual state growth will be 1.4 percent. The service sector will produce almost half (about 240,000) of the total new jobs anticipated during the 1990s.

Occupational Demand Trends

- Traditional blue-collar and white-collar jobs will continue to involve the largest numbers of workforce members in North Carolina through the 1990s. A majority of the blue collar jobs (53 percent) will remain in manufacturing, and high concentrations of jobs and workers will still be in white collar clerical and retail sectors.

"Tech Prep courses of study provide rigorous educational experiences. Articulation with secondary and post-secondary programs provide program continuity."

Henry Johnson, *Assistant State Superintendent*
Program Services, Department of Public Instruction

HOW SUCCESSFUL TECH PREP PROGRAMS OPERATE

Tech Prep programs must combine secondary and post-secondary programs that:

- provide technical preparation in at least one field of engineering technology, applied science, mechanical, industrial, or practical art or trade, or agriculture, health, or business.
- build student competence in mathematics, science and communications (including applied academics) through a sequential course of study.
- lead to placement in employment.

Key Conditions for Accelerating Student Achievement at the secondary level:*

- An organizational structure and process through which the faculty can develop action plans for implementing the Key Practices.
- A school principal with strong and effective instructional and administrative leadership who supports, encourages, and actively participates with the faculty in implementing the Key Practices.
- A system superintendent and school board who support the faculty and school administration in carrying out the Key Practices.
- Leadership from the school superintendent to involve employers and post-secondary institutions in the design and implementation of a dual purpose program of study aimed at preparing students for both post-secondary education and employment.
- A commitment from the school board to support the school in dropping the general track or in dramatically reducing the number of high school graduates completing the general program of study over the next five years.
- A commitment from the superintendent and school board to provide the necessary financial support for instructional materials, time, and staff development needed to implement Key Practices.

*from SREB "High Schools that Work"

Key Conditions for Community Colleges

The community college role is particularly important. Articulation of the approved Tech/Prep Associate Degree course of study must be jointly developed and approved by local Boards of Education and Community Colleges. Associate degree and certificate level community college curricula should:

- Articulate with high school programs to assure that competency repetition is minimized.
- Be designed with employer input to meet current technology requirements of the employing market.
- Meet or exceed State, regional and national standards and/or accreditation requirements for the curriculum.
- Be accredited/certified by the appropriate agency when required as a condition of curriculum offering or employability of the graduate.

"Tech Prep provides the answer to our workforce development needs by articulating the well-prepared Tech Prep high school graduate with the corresponding high-tech associate degree programs or through apprenticeship agreements."

J.W. Eades, *Director of Federal Vocational Education*
Department of Community Colleges

Key Practices for Accelerating Student Achievement *

- Establish higher expectations of students in both academic and vocational classes.
- Encourage vocational and academic teachers to integrate academic and vocational curriculum and instruction by providing them with staff development, materials, and time to work together.
- Revise academic courses or develop new ones to teach concepts from the college preparatory curriculum through functional and applied strategies that enable students to see the relationship between course content and future roles they may envision for themselves.
- Revise vocational courses and develop new ones to expand significantly the emphasis on advancing the communication, mathematics, and science competencies of students.
- Revise the instructional process so that the student is a worker and is actively engaged in the learning process.
- Provide guidance and counseling services that help students see the connection between what they are learning in school and their goals beyond high school and to involve their parents in the process of planning and annually updating a high school program of study.
- Provide extra help that will enable students to complete successfully a program of study that includes high level academic content.
- Participate in and use student assessment and program evaluation information to check and improve the curriculum, instruction, school climate, and school organization and management.

**from SREB "High Schools that Work"*

"Effective Tech Prep programs must integrate vocational/technical and academic education. Academic and vocational/technical educators must jointly plan and deliver integrated curricula."

June Atkinson, *Director, Vocational and Technical Education*
Department of Public Instruction

TECH PREP/ ASSOCIATE DEGREE

Joint Policy Statement for N. C. State Board of Education and N. C. State Board of Community Colleges

The N. C. State Board of Education and N. C. State Board of Community Colleges have jointly supported the creation of the Tech Prep Associate Degree program in North Carolina and now commit to the expansion of the program to all public school districts and community college service areas in the state.

The Tech Prep Associate Degree program was developed to guide students into a course of study leading from high school preparation to the Associate in Applied Science Degree at community colleges. The Tech Prep Associate Degree course of study will form a firm academic and technological foundation for high school students who heretofore did not prepare for collegiate-level education after high school.

Tech-Prep education program means a combined secondary and post-secondary program that:

(1) leads to an associate degree or two-year certificate or completion of a registered apprenticeship program of at least two years' in length;
(2) provides technical preparation in at least one field of engineering technology, applied science, mechanical, industrial, or practical art or trade, or agriculture, health, or business;
(3) builds student competence in mathematics, science and communications (including applied academics) through a sequential course of study; and
(4) leads to placement in employment.

The goal of the Tech Prep Associate Degree program in North Carolina is to prepare at least 85 percent of all high school students through a Tech Prep or College Prep course of study. These students, thus prepared, will be equipped to enter, without remediation, post-secondary education and to enter the workforce with technological skills appropriate to the majority of new jobs.

The two state boards jointly agree to establish an inter-agency Tech Prep Associate Degree Committee to guide the continuing development and implementation of the program. This committee will report annually to the State Superintendent, President of the Community College System and the two boards.

Joint Policy Statement for
N. C. State Board of Education and N. C. State Board of Community Colleges

The two state boards also jointly agree that the framework for the Tech Prep Associate Degree course of study includes the following in all public high school programs:

1. The course of study for Tech Prep will include all core courses and requirements for a high school diploma.
2. All high school academic courses shall include competencies outlined in the state Standard Course of Study and students shall achieve mastery at grade level or better.
3. Math requirements shall include Algebra I and Geometry competencies, with Algebra II as the preferred goal.
4. Science courses sequence shall include competencies related to Tech Prep Associate Degree career cluster.
5. Appropriate contemporary technology course sequences shall be made available utilizing computer-assisted learning, scientific principles and concepts, integration of basic skills, involving higher order thinking and problem-solving skills, and using state-of-the-art equipment.
6. Local education agencies will establish student achievement standards which meet or exceed national or state performance measures.

The comprehensive career guidance program, built upon a competency based approach, will assist every student in grades 7-14 to identify aptitudes, interests and career options, and to select the appropriate academic or technical course of study.

The community college role is particularly important. Articulation of the approved Tech Prep Associate Degree course of study must be jointly developed and approved by local Boards of Education and Community Colleges. Associate degree and certificate level community college curriculum should:

1. articulate with high school programs to assure that competency repetition is minimized;
2. be designed with employer input to meet current technology requirements of the employing market;
3. meet or exceed state, regional and national standards and/or accreditation requirements for the curriculum; and
4. be accredited/certified by the appropriate agency when required as a condition of curriculum offering or employability of the graduate.

Joint Policy Statement for
N. C. State Board of Education and N. C. State Board of Community Colleges

A Tech Prep/Associate Degree Program agreement shall be developed and approved by the local boards. The Tech Prep/Associate Degree Program designation also applies to plans jointly developed with four-year colleges that issue a certificate after successful completion of a four plus two approved course of study or registered apprenticeship programs developed with industry of at least two years following secondary instruction with a common core of required proficiency in mathematics, science, communications and technologies designed to lead to an associate degree or certificate in a specific career field.

The State Board of Education and State Board of Community Colleges are jointly responsible for carrying out a successful Tech Prep Associate Degree program in North Carolina.

CREDITS

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- North Carolina's Commission on Workforce Preparedness
- Carl D. Perkins Vocational and Applied Technology Education Act of 1990, Section 342(a)
- "Tech Prep/Associate Degree- A Win/Win Experience"; Hull and Parnell
- Tech Prep/Associate Degree Joint Policy Statement for N. C. State Board of Education and N. C. State Board of Community Colleges
- Southern Regional Education Board - "High Schools That Work"
- North Carolina Tech Prep Center, Richmond County, Hamlet, N. C.

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